DOCUMENT RESUME

ED 225 480 HE 015 840

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TITLE Producing "Service to Non-Major" Reports Without an ICLM via NCHEMS. SAIR Conference Paper.
PUB DATE Oct 82
NOTE 29p.; Paper presented at the Annual Conference of the Southern Association for Institutional Research (Birmingham, AL, October 28-29, 1982). Appended examples of the computer program and the output report may not reproduce well.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS College Credits; *Computer Oriented Programs; Computer Programs; Courses; Departments; Higher Education; *Information Needs; *Institutional Research; *Management Information Systems; *Nonmajors; *Reports; Undergraduate Study
IDENTIFIERS Induced Course Load Matrix; *SAIR Conference

ABSTRACT

The procedures for producing a report on departmental service to nonmajors are described in detail. The objective was to provide information for decision-making needs without reliance on the standardized pre-packaged models. An alternative to the Induced Course Load Matrix (ICLM) of the Resource Requirements Prediction Model (RRPM) package of the National Center for Higher Education Management Systems (NCHEMS) provides concrete information as opposed to symbolic or ratio information. Since the ICLM as contained in the NCHEMS package was too complex for practical purposes, the IRS145 was developed to produce a two-page departmental report on student credit hours generated by undergraduate majors. IRS145 is a computer job primarily written in Easytrieve, with one program written in PL1. Detailed explanations are provided concerning the files and the programs. The fields include major, classification, quarter, course number, and quarter credit hours for the course. The uses of the IRS145 versus the ICLM are briefly contrasted. An explanatory memo for department heads regarding the approach is appended. (SW)

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ED225480

PRODUCING "SERVICE TO NON-MAJOR" REPORTS

WITHOUT AN ICLM via NCHEMS

A paper presented to the
Southern Association for Institutional Research
Birmingham, Alabama
October 28-29, 1982

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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SOUTHERN ASSOCIATION FOR INSTITUTIONAL RESEARCH

This paper was presented at the 1982 Annual Conference of the Southern Association for Institutional Research held in Birmingham, Alabama, October 1982. It was reviewed by the SAIR Publications Committee and was judged to be of high quality and of interest to others concerned with the research in higher education. This paper has therefore been selected to be included in the ERIC collection of Conference Papers.

Gerald W. McLaughlin
President, SAIR

INTRODUCTION

As the title indicates the topic of this paper centers around the production of information on departmental service to non-majors. However, the concern of the paper reaches further to the issue of institutional reliance upon the prepackaged information systems becoming ever more prevalent in the analytical functions of institutional research. The output of these "models" is often disseminated with the expectation that any fool could see the obvious usefulness of such awe-inspiring information. The true value of such information is determined by forces beyond the control of the institutional researcher. Reference here is to the managerial and decision-making processes unique to each institution. These processes are particularly prone to change and fluctuation given the mobility among key top administrators. (Average tenure expectancy of college president is said to be approximately 5-6 years).

Given an unstable administrative environment it is no wonder that many an institutional researcher has sought to establish a sanctuary of continuity in a defined and standardized information systems model. It is convenient to rely on an external agency to produce a model which can be imported or copied and then trust the results will somehow address the needs of the environment. However, the environment is not always receptive to a well-ordered managerial process. What has been imported from the technical experts is likely to be a highly-tuned system for analyzing (maybe the main but) primarily the middle segment of campus activities. It comes into the institution with no beginning and no end and is, thus, disconnected from the real world of the individual institution.

What is described in this paper are efforts to construct a "home-grown" variety of the ICLM specifically to produce concrete information as opposed to symbolic or ratio information. References to the ICLM pertains to the program as contained in the RRPM package produced by NCHEMS and not as the widespread and commonly used academic matrix of Sidney Suslow (1965). Indeed what has been constructed fits well into the definition of an academic matrix without producing induced course load ratios. It is hoped that by a detailed presentation of the procedures which led to a report on non-majors other I.R. offices will be more aware and comfortable with their capability to address the decision making needs of their institution without the standardized pre-packaged models offered by external agencies.

THE NEED FOR A SERVICE TO NON-MAJORS REPORT

> "Most budget planners will agree that an academic unit's operational budget -- is related to the number and level of students serviced by that unit as well as the pedagogical and methodological aspects of the unit's academic programs." (Kieft, 1975).

This quote contains no surprising revelation to anyone associated with budgetary planning. The first step in the allocation of funds throughout the institution to each department is to determine the approximate impact of changing program enrollments. How this is accomplished varies from institution to institution and sometimes within the institution. In the case of Central Michigan as reported by Kieft, the enrollment of each department was defined in terms of F.T.E. which combines the credit hours of students majoring in the departments' programs with the credit hours generated by non-major

students. The enrollment estimates were derived from an ICLM which was sufficient for the purposes of budget planning. At this point some among us might muse, "Well, for what other purposes should an ICLM be used?"

As pressures begin to accumulate, internal and external to the institution for accountability; as institutions are forced to better utilize dwindling resources; and as the newest term in planning (strategic) comes into vogue each academic unit needs to be fully aware of all the services it renders. Traditionally, department heads have pointed to the number of majors and/or advisees; the number of courses offered and/or taught; and various community activities of their faculty while ignoring the support service to the majors of other departments.

The ICLM has great potential for developing insights with regard to how a department influences and is influenced by other department offerings (Haight and Martin, 1975; Suslow, 1976). The question is, "How usable is the ICLM output at the most decentralized level?" Inevitably, there are problems created by the varying backgrounds of those involved in the analytical activity as they seek to communicate and interpret ICLM data to deans and department heads who do not share a common disciplinary perspective (Patterson and Minaham, 1977). Therefore, "much of these data are not converted into policy relevant information but remain incarcerated by computer or data processing equipment" (Fincher, 1977). These problems combined with the rush to implement NCHEMS products aimed at producing data for budget planning has caused most institutions to overlook if not be completely unaware

of the analytical capabilities of the ICLM. As Peterson (1976) has noted in his evaluation of current knowledge on departments, "The service function is virtually unexamined" (p. 29).

At our institution an ICLM was created each year from 1972 through 1975 when it was decided to be terminated in order to conserve paper and make available additional storage space for other computer center activities. This was some what disturbing to the authors (employed 1979) who received directions (February 1982) from the Vice President of Academic Affairs (employed 1978) to facilitate each department in their mandated departmental review a la strategic planning. Each department head received a form similar to the one below which was to be completed and submitted to their dean and who in turn was to present all information to committee for study and recommendation.

Dept. X	Faculty Quality	Demand by Majors	Service to Non-Majors	Library Holdings	Facilities & Equipment
Major A					
Major B					
Major C					

(Source: Workshop on Developing and Improving Academic Planning Processes by NCHEMS April, 1980).

If the previous points in the literature were not enough reason to produce a non-major report for each department, the Vice President had just provided one . . . twenty-six department heads simultaneously knocking at the door for this suddenly useful information to justify their existence.

AN ALTERNATIVE TO THE ICLM: IRS145

The first author of this paper spent a hectic period trying to locate and revive any remnants of the old ICLM package. The fact that only one person in the computer center could even faintly recall its existence did little to attest it being popular let alone useful when it was produced. Only one printout of the ICLM for the total institution remained in tact and that was in the I. R. office. (Pack-rat traits are typical across individuals of this species.) Finally, the first author prevailed upon the second with plaintive pleas for assistance.

The desired output was defined firstmost. It was decided that since the student-credit-hour was the common denominator in the budget formula, this would be the most useful and directly relevant unit to report each department's service to non-major. A variety of other units could have been substituted such as, head-count, FTE, and/or percentages of total majors. The objective was to provide a pertinent unit which could be related to support for the department. Therefore, after much discussion the following procedure resulted. It describes the process for producing a two page departmental report on student credit hours generated by undergraduate majors.

CONSTRUCTION OF THE IRS145

IRS145 is a computer job which actually consists of a number of related programs. All but the last program are written in Easytrieve, which is a report generating package that is designed to use in pulling information from computer files with ease. The last program is written in PL1 for reasons given later. Before discussing these

programs the files being used will be described. The main file used is the institutional research file (INR114). This file is generated at a scheduled time after each quarter has been completed. Each record contains 349 bytes, and there are usually around 15,000 records per quarter. The file contains information on all students enrolled at our institution. There is a record in the INR file for each course that a student has enrolled in. The student's identification information in the first 237 bytes is repeated on all of the records. However, starting with byte 238 the data pertains only to the course that is represented by that record. The fields used in IRS145 were the following: social security number, major, classification, quarter, three letter course abbreviation, course number, and quarter credit hours for the course.

There are several table files used in IRS145. MAJDEPT is used to find out which department offers a given major. CRSDEPT is used to find out which department offers a given course. DEPTABLG is a table of 22 byte department names, while DEPTABSH is a table of 7 byte department names. The longer names are used in the heading at the top of a page and the shorter names are used to head columns.

Now that we have given some attention to the files, we will turn our attention to the programs themselves. IRS145 has a preliminary job which is run before it(IRS145). The function of IRS145P is to find out if the table look up files MAJDEPT and CRSDEPT contain all the information necessary to run IRS145 for that year. In other words, are there any major codes or three letter course abbreviations in the INR114 file for that year which are not in the table look up files? If there are, then this is brought to the users attention.

and he can then update the appropriate table file. A second function of IRS145P is to eliminate unwanted records in the INR114 file. For example, if we are working on a report for undergraduate students we would want to eliminate all the graduate student records. Other examples are records with a missing major and records with zero quarter credit hours. These are meaningless for the purposes of this report and should be eliminated. A third function of IRS145P is to set up a file from the INR114 file with shorter records containing only the essential information for IRS145 which was listed earlier. This new file is called STNM.

Once the preliminary job IRS145P is run and the missing majors and courses are taken care of, IRS145 can be run. The first thing that IRS145 does is to create a file containing the number of every department which teaches a course and another file containing the number of every department which has majors. These files are used in the program which sets up the matrix so that there will be an order to the report (i.e. department number order; the departments are numbered so that they will be listed in alphabetical order grouped by school). More information will be added to these files in a later job step.

Next IRS145 prepares to compile the fall quarter major figures by sorting the STNM file. The file is sorted first on quarter descending so that the fall quarter records will come to the top. Also the file is sorted on major department number so that a count of majors may be obtained for each department. Then the file is sorted on social security number so that each student will only be counted once (remember there are multiple records per student; one for each course he is enrolled in). After the file is sorted, the counting process begins. Each time the social security number changes a counter is incremented. Whenever the

DEPTABLG to obtain the 22 byte department titles. This title is then placed in the record with the number so that it can be used in the report. The same thing is done with the major department numbers. A table look up is done on the file DEPTABSH to obtain the 7 byte department titles and add them to the file. In addition, the major counts discussed earlier are added to the file using the table look up feature.

The final step of IRS145 (contained in appendix A) is written in the PL1 language. The reason for this is that PL1 has the multi-dimensional array feature, whereas Easytrieve does not. The declarations come first in the program listings. This is where all the fields, files, printed output lines, etc. are defined. Next, the files are all opened, each location in the quarter credit hour matrix is initialized to zero, and the end file conditions are set. The end file condition tells what is to be done when the named file runs out of records.

Step 1 is concerned with reading the major department file. Once the record has been read, a one dimensional array called MAJPTABR (which has as its index the major department number) is loaded with consecutive numbers starting with one. For example, if the first major department number were 32, then the 32nd location of the array would be set to 1. If the second number were 34 then the 34th location would be set to 2, etc. This array is used later on in looking up the second index for the quarter credit hour matrix. Also the major counts and department short titles are put into arrays in the same order that they were read in. In Step 1A the same things that were done with the major department file are done with the course department file with the exception of the major count. As before,

there is a one-dimensional array called CDEPTARR which is indexed by the course department number. This array is used to look up the first index for the quarter credit hour matrix.

Step 2 of the PL1 program is where the quarter credit hours coming in on the 'STM' file are added to their proper place in the quarter credit hour matrix. The first and second indices are obtained from the arrays described above. The third index is either one, two, or three depending on whether the course is a lower, upper, or graduate level course. Row totals for each level are also accumulated. The years portion is simply concerned with putting the correct year into the headings.

Step 3 of this program handles the printing aspects. It starts off by putting the job name, time, and date into the headings. The main loop in this portion of the program called LOOP is executed once for each column on each page. Its function is to fill in the detail of the report (i.e. the department short titles to head the columns, the number of all quarter majors, and the quarter credit hours).

The resulting report is less than 60 computer paper pages consisting of two pages of data on each department. (See Appendix B for example). These are separated and sent to the appropriate department head. Each column designates the department for which the data in that column applies for that fiscal year. The first row contains the number of students indicating a major in each department during the year. The second, third and fourth rows designate the course levels in which student credit hours have been produced during the year.

THE USE OF THE IRS145 vs. THE ICLM

As administrators become increasingly concerned with the costs of providing instructional courses to students from other departments they will need a solid understanding of program and department interrelationships. Data derived from an ICLM may be partitioned, aggregated and displayed in a variety of ways to depict useful (hopefully) information on service to majors and non-majors. However, the sheer magnitude of information contained in an ICLM is often a major barrier in making constructive use of the data. The prior experiences with the ICLM at our institution seem to have led to its early demise.

Sanford (1977) also has indicated that in his experience few administrators are interested in a complete ICLM. Instead he suggests it is best to canvas offices and departments to ascertain specific questions which could be addressed using small parts or bits of information from an ICLM. This would avoid the expense of preparing, printing and distributing a great quantity of material. However, a question which we wish to pose is, why is a complete ICLM necessary if specific questions are to be addressed as they occur?

Having a complete ICLM available from which only specific answers are to be derived can result in the same confusion faced by the lumber jack when told to find a single oak tree in a forest. There are so many oak trees the process of deciding on one may be torturous. In Appendix B there is an example of the results of the IRS145. In Appendix C is an example of one page from the ICLM printout containing the same department. To obtain the same data that is in the IRS145 someone must go through 22 more of these pages and then construct a separate table. If you were a department head, which one would you prefer to utilize in assessing your service to non-majors? There is another salient point here which should not go unmentioned. The ICLM

coefficients are often ill-understood by the department head lacking statistical skills but due to the impressive format and the fact that they came from the computer the coefficients may be inserted in a report or used incorrectly. This results in little or no increase in the department head's understanding of the interrelationship with other departments. There might be more good understanding to occur if the process required the department head to conduct some calculations and thereby think through the relationships. Appendix D contains the memo which accompanied each department's IRS145. It represents one attempt to produce a better understanding, through the self-efforts of the administrator about the role and influence of service to non-majors by the department.

In addition, given the fluctuating environment of decision making the standardized pre-packaged model may not address the management style or set of information desired. Advances in technology and software are rapidly making available a wide range of statistical packages, computer languages and data processing capabilities not only to the I.R. office but also to each academic unit manager. With these advances should come the capability to quickly design the programs on an as-needed-basis to address requests for planning data.

IN CONCLUSION

The ICLM (as contained in NCHEMS-RRPM) has been found, in the experience at our institution, to be far too complex (in size and type of data) for practical purposes. Indeed the concept of a global centralized information system which produces costing data

well as a host of other data promising to address internal as well as external requests is appealing. These pre-packaged systems must have been extremely appealing a decade ago when computer systems were large, expensive and highly centralized while at the same time personnel resources capable of designing tailor made systems were in short supply. Today, computer systems are better understood and rapidly becoming decentralized as the microcomputer and its user-friendly languages make their way into more and more administrative offices. Accompanying these developments will be a proliferation of tailor made systems to address needs for internal and external information.

This brings us to a major inefficiency of the tailor-made systems . . . . a duplication of time and effort. However, if in the process, decision-makers acquire a better understanding and therefore make better application of the information, the benefits would be more effective planning. Too often the primary focus of information systems designed off campus has been on providing data to outside users with little effort being directed toward the internal users' understanding. This is reflected in the reporting formats designed by the outsider with their own questions assumed to be the primary focus. Thus, an institution seeking to utilize the pre-packaged ICLM is often faced with restructuring the system products away from the external needs and toward the internal problems/preferences of the campus.

A major advantage perceived in the global comprehensive information systems is its capability of answering virtually every question. However, the individual institution at any particular point in time may only need information pertaining to 10% of all the questions which

could be asked. Should the institution be required to run 100% of the information systems program in order to achieve the 10%? As Smith (1975) has suggested it might be a more effective approach to develop a series of smaller problem oriented programs. This would provide "hand-held models" which could provide sufficient data to address specific problems. The development of the IRS145 represents one such model specifically oriented to the need for information on service to non-majors. It makes no pretense to address a multitude of other questions and it certainly does not yield data directly comparable to service to non-majors at other institutions. At this particular point in time the data has been welcomed by department heads studying and justifying the services rendered as a part of the total institution.

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```
STAM:   PROC OPTIONS(MAIN);

        SOURCE LISTING.

STMT LEVEL NEST
  1                 STAM:   PROC OPTIONS(MAIN);                                   1
  2     1           DCL 1 RECIN,                                                  2
                        2 SSN DEC FIXED (9),                                      3
                        2 MAJ DEC FIXED (3),                                      4
                        2 MDEPT DEC FIXED (2),                                    5
                        2 OCH DEC FIXED (3),                                      6
                            2 CRSABR  CHAR(4),                                    7
                        2 CRSNUM DEC FIXED (3),                                   8
                          2 CDEPT DEC FIXED (3),                                  9
                          2 YR DEC FIXED (2),                                     10
                          2 QTR DEC FIXED (1);                                    11
  3     1           DCL IDFILE FILE RECORD SEQL;                                  12
  4     1           DCL CCHARR(100,3) DEC FIXED (6);                              13
  5     1           DCL CDEPTARR(100) DEC FIXED (3);                              14
  6     1           DCL MDEPTARR(100) DEC FIXED (3);                              15
  7     1           DCL CDFILE FILE RECORD SEQL;                                  16
  8     1           DCL MDFILE FILE RECORD SEQL;                                  17
  9     1           DCL CCNT DEC FIXED (3) INIT(0);                               18
 10     1           DCL MCNT DEC FIXED (3) INIT(1);                               19
 11     1           DCL (C,M) DEC FIXED (3);                                      20
 12     1           DCL L DEC FIXED (1);                                          21
 13     1           DCL 1 H1,                                                     22
                        2 CCH1 CHAR(1) INIT('1'),                                 23
                        2 JD  CHAR(10),                                           24
                        2 DE  CHAR(10),                                           25
                        2 TM CHAR(20),                                            26
                        2 T1A CHAR(31) INIT('QUARTER CREDIT HOURS CLASSES '),     27
                        2 T1B CHAR(51) INIT('BY UNDERGRADUATE MAJORS'),           28
                        2 PG  CHAR(5) INIT('PAGE'),                               29
                        2 PNUM PIC 'ZZZ9';                                        30
 14     1           DCL 1 H2,                                                     31
                        2 CCH2 CHAR(59) INIT(' '),                                32
                        2 T1A CHAR(6) INIT('SUMMER 19'),                          33
                        2 YR1 PIC'99',                                            34
                        2 T1B CHAR(13) INIT(' TO SPRING 19'),                     35
                        2 YR2 PIC'99',                                            36
                        2 T1C CHAR(53) INIT(' ');                                 37
 15     1           DCL 1 H3,                                                     38
                        2 CCH3  CHAR(59) INIT(' '),                               39
                        2 T2   CHAR(6) INIT('DEPT:'),                             40
                        2 DEPTL  CHAR(22),                                        41
                        2 T1  CHAR(52) INIT(' ');                                 42
 16     1           DCL 1 H4,                                                     43
                        2 CCH4 CHAR(1) INIT('0'),                                 44
                        2 T1A  CHAR(16) INIT('DEPARTMENT'),                       45
                        2 DEPTS(14) CHAR(8),                                      46
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      STAM:   PROC OPTIONS(MAIN);

   STMT LEVEL NEST

                        2 T4   CHAR(4)  INITIAL (' ');                          47
    17    1           DCL 1 H5,                                                 48
                        2 CCH5  CHAR(1)  INITIAL('0'),                          49
                        2 T5 CHAR(17) INITIAL('NO. OF HEADERS'),                50
                        2 NOHEAD(14)  PIC'ZZ,ZZZ',                              51
                        2 T6  CHAR(3)  INITIAL(' ');                            52
    18    1           DCL 1 H6,                                                 53
                        2 CCH6 CHAR(1)  INITIAL(' '),                           54
                        2 T6A  CHAR(132) INITIAL('FALL GUARDRAIL');             55
    19    1           DCL 1 H7A,                                                56
                        2 CCH7A  CHAR(1) INITIAL('0'),                          57
                        2 T7E  CHAR(132) INITIAL('COURSE LEVEL');               58
    20    1           DCL 1 H7B,                                                59
                        2 CCH7B  CHAR(1) INITIAL(' '),                          60
                        2 T6C  CHAR(132) INITIAL('-------------');              61
    21    1           DCL 1 D1,                                                 62
                        2 CC1 CHAR(1) INITIAL('0'),                             63
                        2 T7  CHAR(16)  INITIAL('ERROR < 25C'),                 64
                        2 COUNT(14) PIC'ZZ,ZZZ',                                65
                        2 T8  CHAR(4)  INITIAL(' ');                            66
    22    1           DCL 1 D2,                                                 67
                        2 CC2  CHAR(1)  INITIAL('0'),                           68
                        2 T9  CHAR(16)  INITIAL('ERROR 25C<=X<=45C'),           69
                        2 COUNT(14)  PIC'ZZ,ZZZ',                               70
                        2 T10  CHAR(4)  INITIAL(' ');                           71
    23    1           DCL 1 D3,                                                 72
                        2 CC3  CHAR(1)  INITIAL('0'),                           73
                        2 T9  CHAR(16)  INITIAL('ERROR > 45C'),                 74
                        2 COUNT(14)  PIC'ZZ,ZZZ',                               75
                        2 T10  CHAR(4)  INITIAL(' ');                           76
    24    1           DCL DATE.TIME  CHAR(6);                                   77
    25    1           DCL FLAG BIT(1)  INITIAL('1'B);                           78
    26    1           DCL DATE.TIME  BUILTIN;                                   79
    27    1           DCL HH CHAR(2)  DEFINED TIM POS(1);                       80
    28    1           DCL MN CHAR(2)  DEFINED TIM POS(3);                       81
    29    1           DCL YY CHAR(2)  DEFINED DTE POS(1);                       82
    30    1           DCL MM CHAR(2)  DEFINED DTE POS(3);                       83
    31    1           DCL DD CHAR(2)  DEFINED DTE POS(5);                       84
    32    1           DCL JOBNAME ENTRY;                                        85
    33    1           DCL BLNK CHAR(1) INITIAL(' ');                            86
    34    1           DCL PRNT FILE RECORD SEQL ENV(F(133) CTLASA);             87
    35    1           DCL PCNT DEC FIXED (5) INITIAL(0);                        88
    36    1           DCL LASTTITLE(100)  CHAR(22);                             89
    37    1           DCL SHTTITLE(100)  CHAR(7);                               90
    38    1           DCL MAJCNT(100)  DEC FIXED (5);                           91
    39    1           DCL 1 COUNTS,                                             92
                        2 COUPINC DEC FIXED (3),                                93
                        2 LCNO  CHAR(22);                                       94
    40    1           DCL 1 MOINFO,                                             95
                        2 MOUPINC DEC FIXED (3),                                96
```

```
STMT LEVEL NEST

                    2 MCOUNT DEC FIXED (5),
                    2 SPLAT CHAR(7);
  41     1        DCL (X,Y,Z) DEC FIXED (3) INITIAL(0);

  42     1        OPEN FILE (INFILE) INPUT;
  43     1        OPEN FILE (ACCFILE) INPUT;
  44     1        OPEN FILE (MCFILE) INPUT;
  45     1        OPEN FILE (PRNT) OUTPUT;

  46     1        LCHAR = 0;

  47     1        ON ENDFILE (INFILE) BEGIN;
  48     2           GO TO STEP2;
  49     2           END;
  50     1        ON ENDFILE (ACCFILE) BEGIN;
  51     2           GO TO STEP2;
  52     2           END;
  53     1        ON ENDFILE (MCFILE) BEGIN;
  54     2           GO TO STEP2;
  55     2           END;
  56     1        STEP1:  READ FILE (INFILE) INTO (RECORD);
  57     1                VOLPTAB(MCOUNT) = MCNT;
  58     1                MAGNITUDE = PC_CNT;
  59     1                SPITTING = SPLAT;
  60     1                MCNT = MCNT + 1;
  61     1                GO TO STEP1;
  62     1        STEP1A: READ FILE (ACCFILE) INTO (ACCRECD);
  63     1                LCNT = LCNT + 1;
  64     1                ACCPTAB(ACCNUMBER) = FLAG;
  65     1                LASTATTACKED = LCNT;
  66     1                GO TO STEP1A;

  67     1        STEP2:  READ FILE (MCFILE) INTO (MCCARD);
  68     1                C = SUBSTR(MCCARD,1,1);
  69     1                X = DEC(SUBSTR(MCCARD,2,2),2);
  70     1                IF C='A' & X < 100 THEN L = 1;
  71     1                ELSE
  72     1                   IF C='A' & X < 200 THEN L = 2;
  73     1                   ELSE
  74     1                   L = 3;
  75     1                ACCPTAB(X,L) = ACCPTAB(X,L) + 1;
  76     1                LCHAR(X,L) = LCHAR(X,L) + 1;
  77     1                IF MOD = 0 & FLAG THEN
  78     1        YEAR1:  DO;
  79     1                FLAG = '0'B;
  80     1                YR1 = YR;
  81     1                YR = YR + 1;
  82     1                YR2 = YR;
  83     1                END YEAR1;
  84     1                GO TO STEP2;

  85     1        STEP3:  CALL DTHNAME(DATE);
  86     1                DAY = DATE;
  87     1                TIM = TIME;
  88     1                DD = SUBSTR(DAY,1,2)||'/'||SUBSTR(DAY,3,2)||'/'||SUBSTR(DAY,5,2);
```

```
STAM:   PROC OPTIONS(MAIN);

STMT LEVEL NEST

  52     1              TM = TP('1':'1');
  53     1          LOOP: DO WHILE (X <= CARD);
  54     1     1              OUTFIL = SUBSTR(CARD,X,1);
  55     1     1              CDPTS = BLANK;
  56     1     1              ADJMAJ = 0;
  57     1     1              LCNTR = 0;
  58     1     1              CHARS = 0;
  59     1     1              GRAC = 0;
 100     1     1              Z = 1;
 101     1     1          INLOOP: DO WHILE (Y <= MCNT & Z <= 14);
 102     1     2              IF Y < MCNT THEN
 103     1     2          MAJOR:    DO;
 104     1     2                    CDPTS(Z) = SPTITLE(Y);
 105     1     2                    ADJMAJ(Z) = MAJCNT(Y);
 106     1     2                END MAJOR;
 107     1     2              ELSE
 108     1     2                CDPTS(Z) = ' TOTAL';
 109     1     2                    LCNTR(Z) = SUBSTR(X,Y,1);
 110     1     2                    CHARS(Z) = SUBSTR(X,Y,2);
 111     1     2                GRAC(Z) = SUBSTR(X,Y,3);
 112     1     2                    Y = Y + 1;
 113     1     2                    Z = Z + 1;
 114     1     1                END INLOOP;
 115     1     1              MCNT = MCNT + 1;
 116     1     1              PAGE = PAGE;
 117     1     1              WRITE FILE (PRINT) FROM (OUT);
 118     1     1              WRITE FILE (PRINT) FROM (CDPTS);
 119     1     1              WRITE FILE (PRINT) FROM (LCNTR);
 120     1     1              WRITE FILE (PRINT) FROM (CHARS);
 121     1     1              WRITE FILE (PRINT) FROM (GRAC);
 122     1     1              WRITE FILE (PRINT) FROM (ADJMAJ);
 123     1     1              WRITE FILE (PRINT) FROM (TM);
 124     1     1              WRITE FILE (PRINT) FROM (A);
 125     1     1              WRITE FILE (PRINT) FROM (A1);
 126     1     1              WRITE FILE (PRINT) FROM (B);
 127     1     1              IF Y > MCNT THEN
 128     1     1          NEWLPI:   DO;
 129     1     2                        X = X + 1;
 130     1     2                        Y = 1;
 131     1     2                    END NEWDPI;
 132     1     1            END LOOP;

 134     1          CLOSE FILE (INFILE);
 135     1          CLOSE FILE (CONFILE);
 136     1          CLOSE FILE (INSFILE);
 137     1          CLOSE FILE (PRINT);
 138     1          END STAM;
```

S145 10/12/82 09:05 QUARTER CREDIT HOURS GENERATED
SUMMER 1981 TO SP
DEPT: HISTORY

PARTMENT	ART	BLY	CHM	ENG	EN ARTS	FRN LNG	GE
CP MAJORS E QUARTER)	80	142	57	57	196	12	4
RSE LEVEL							
EP < 300	125	380	135	130	535	25	10
ER 300-499	10	15	5	60	40		5
DE > 499							

145 10/12/82 09:05 QUARTER CREDIT HOURS GENERATED B
SUMMER 1981 TO SPRI
DEPT: HISTORY

RTMENT	PSY	SOC/ANT	ACC/FIN	ADL	ECN MGT/MKT		EDE
CP MAJORS E QUARTER)	130	120	251	194	42	540	170
SE LEVEL							
< 300	305	275	770	650	70	1,310	360
R 300-495	70	55	10	20	5	40	
> 499	5						

APPENDIX C

ICLM-05 — INDUCED COURSE LOAD MATRIX SYSTEM — PAGE 05
NCHEMS — ICLM/ISLM
1/08/73 — WEST GEORGIA COLLEGE — YEAR 1973

STUDENT LEVEL = (1) LOWER — INSTRUCTIONAL (COURSE) LEVEL = (1) LOWER — ENROLLMENTS ARE FTE

-- MAJOR ---	(0001)	(0002)	(0004)	(0005)	(0007)	(0008)	(0009)	(0010)	(0012)
-- ENROL ---	UNDECIDED	ACCOUNTING	ANTHRO	ART	BIOLOGY	BUS ADM	BUS ED	EDU-ELEM	CHEMISTRY
	2,660	99	4	217	380	398	123	301	83
DEPT = 001	550	145		5	35	580	160	15	
ACCOUNTING	.21	1.46		.02	.09	1.62	1.30	.05	
DEPT = 002	565			25	55	90		50	
ANTHROPOLO	.21			.12	.14	.11		.17	
DEPT = 003	1,625	55	5	550	90	90	30	175	35
ART	.61	.56	1.25	2.53	.23	.25	.24	.58	.56
DEPT = 004	155	10				160	275	10	
BUS ED	.06	.10				.45	2.24	.03	
DEPT = 005	2,085	90	15	125	625	250	30	280	80
BIOLOGY	.78	.40	3.75	.58	1.64	.70	.24	.93	1.27
DEPT = 006	825	30		45	605	80	15	55	145
CHEMISTRY	.31	.30		.21	1.59	.22	.12	.18	2.30
DEPT = 007	101	35			12	106	28		
COMP SCI	.04	.35			.03	.30	.23		
DEPT = 008	980	155			45	645	125	15	15
ECONOMICS	.37	1.57			.12	1.80	1.02	.05	.24
DEPT = 009	310			45	30	20	25	185	
EDUCATION	.12			.21	.08	.06	.20	.61	
DEPT = 010	7,045	230	20	510	1,060	850	245	850	160
ENGLISH	2.65	2.32	5.00	2.35	2.79	2.37	1.99	2.78	2.59
DEPT = 012	1,065			170	245	55		105	15
LANGUAGES	.40			.78	.63	.15		.35	.24
DEPT = 013	880	25		35	105	85	2	90	15
GEOGRAPHY	.33	.25		.16	.27	.24	.02	.30	.24
DEPT = 014	2,845	100		220	70	405	75	185	
GEOLOGY	1.07	1.01		1.01	.18	1.13	.61	.61	
DEPT = 015	6,145	170	5	375	650	345	135	555	70
HISTORY	2.31	1.72	1.25	1.73	1.65	.96	1.10	1.91	1.11
DEPT = 018	4,160	110	5	225	895	345	70	405	155
MATH	1.56	1.11	1.25	1.04	2.30	.96	.57	1.34	2.14
DEPT = 019	1,154	75		67	155	88	11	89	11
MUS	.43	.76		.31	.40	.25	.09	.31	.17
DEPT = 021	1,780	55	5	125	295	195	55	215	15
PHYED	.67	.55	1.00	.58	.77	.55	.45	.70	.59

APPENDIX D

MEMORANDUM

TO: _____
Department Head

FROM: I.R. Office

SUBJECT: Addressing Service to Non-Majors During Program Assessment

Previous departmental planning documents sent to you from this office pertained to the demographic profile of majors in your department and the academic profile of majors in your department. Both of these documents are oriented toward the students who select majors within your department and does not provide information relevant to students taking courses offered in your department but have selected majors in other departments. One evaluative criteria which is to be used in the current program assessment endeavor pertains to the service of the department to those students who are non-majors. In an effort to facilitate each department in addressing this area of program assessment, the attached information has been provided.

The description of the quarter credit hours generated by undergraduate majors encompasses the total number of quarter credit hours produced in your department from Summer of 1981 through Spring of 1982. These quarter credit hours have been grouped according to whether they were generated in the lower division, upper division, or at the graduate level by students classified as undergraduates. Within this categorization they have also been identified by the majors in each department, in addition to your department. By assuming that the year 1981-82 is a fairly typical year for production of undergraduate quarter credit hours, a ratio of productivity for students majoring in other departments can be obtained.

This is done by comparing the quarter credit hours generated by your majors with the quarter credit hours generated by each of other majors. This yields a department by department service from your departmental offerings. A total institutional service to non-major ratio can be determined by subtracting the quarter credit hours of your department from the total identified in the last column on page two of the attached. Dividing the remainder by the total then yields the percent of the quarter credit hours which are produced by your department for non-majors.

Additionally, this information can be used to study which majors appear to be most attracted to the courses offered in your department. In other words, which disciplines produced the largest amount of quarter credit hours for your department and thus required the largest/greater amount of service to non-majors?